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(71) Applicant: **NextGEN360 Ltd.**
**Linthwaite**
**Huddersfield**
**HD7 5QH (GB)**

(72) Inventors:
- **Wilson, Ben**
  **Stockport, SK6 5NK**
  **Greater Manchester (GB)**
- **France, Simon**
  **Bramley, Rotherham S66 3XA**
  **Surrey (GB)**

(74) Representative: **Kernebeck, Thomas**
**Kernebeck Patentanwalts GmbH**
**Stiftstraße 2**
**60313 Frankfurt am Main (DE)**

## (54) VAPING DEVICE HAVING A DISPOSABLE FILTER MEMBER

(57) Disclosed is a vaping device (10) including an upper device unit (16) with an integrally formed mouthpiece (14), a battery unit (24) connectable to the upper device unit (16), the upper device unit (16) and the battery unit (24) conjointly forming an enclosed storage volume (28), a liquid storage pod (18) arranged in the enclosed storage volume (28), and a filter member (12) insertable into the mouthpiece (14) of the upper device unit (16). The liquid storage pod (18) and the at least one substance are stored in separate compartments of the vaping device (10). The liquid storage pod (18) can include a liquid storage chamber (30), a vaping chamber (32), a ceramic coil compartment (34) arranged at an inlet end of the vaping chamber (20), and a connector (36) for coupling the liquid storage pod (18) to the battery unit (24). Further, a method of operating the vaping device (10) is disclosed in which the liquid storage pod (18) is inserted into a battery unit (24) of the vaping device (10) and an upper device unit (16) is slid over the liquid storage pod (18) to enclose the liquid storage pod (18). After releasing at least one substance into a filter member (12) and inserting the filter member (12) into a mouthpiece (14) of the upper device unit (16), the vaping device (10) is activated, preferably by drawing on the filter member (12). The vaporisable liquid is vaporised in the vaping chamber (20) and mixed with the at least one substance within the filter member (12).

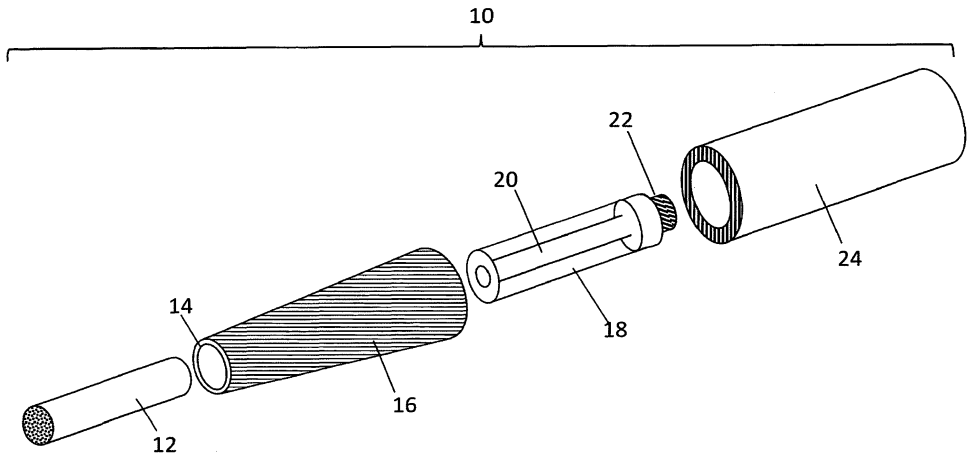


FIG. 1

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## Description

### Field of the Invention

**[0001]** The invention relates to a vaping device with a self-contained liquid storage pod including a heating coil and a disposable filter member. The liquid storage pod is arranged in an enclosed storage volume of the vaping device. Further, the invention relates to a method of operating the vaping device.

### Background of the Invention

**[0002]** Vaping devices, or electronic cigarettes, have become popular in recent years as a replacement for traditional cigarettes and as smoking cessation aides. Vaping devices avoid the generation of smoke from burning tobacco products by vaporising an "electronic liquid" or e-liquid. Specifically, the e-liquid is vaporised in the vaping device and the resulting vapour is consumed instead of the smoke that is created when burning tobacco products, e.g., cigarettes.

**[0003]** In some vaping devices, the e-liquid can be replenished by refilling an e-liquid tank. However, the refilling can cause spills or be otherwise messy. Further, the e-liquid contains beside a vaporisable liquid component an active ingredient like nicotine along with one or more other substances like flavour compounds responsible for the taste. Thus, vaporising of the e-liquid in the vaping chamber of the vaping device must be carried out in a manner that allows the generation of a vapour containing nicotine and the flavour compound(s), which puts a constraint on the optimisation of how these components are delivered. For example, a temperature setting in the vaping chamber may be set to a value that is not optimal for the delivery of one of the active ingredients/other substances but that must be used to ensure the delivery of all of the active ingredients and other substances. Specifically, one of the flavour compounds may partially decompose at the selected temperature setting, but using a lower temperature setting is not feasible because the lower temperature would not allow for cleanly vaporising all of the active ingredients and other substances of the e-liquid.

**[0004]** In addition, the known devices do not allow a consumer to easily switch between different flavours. If the consumer wants to switch to a different flavour before the entire e-liquid is consumed, the e-liquid must be changed, which requires either emptying the e-liquid container and filling in a different e-liquid, or replacing the entire e-liquid tank. However, the previously used e-liquid must then be stored or discarded.

**[0005]** Moreover, traditional cigarettes are suitable vehicles for delivering nicotine. It is known that other substances having beneficial properties, such as treatments for respiratory ailments, can also be delivered through the respiratory system. However, it is not feasible to deliver these substances with a traditional cigarette because of the known health risks of smoking.

**[0006]** Based on the above, there is a need to provide a vaping experience that is more convenient and tidy. Further, it should be possible to deliver other substances in addition or as an alternative to nicotine, as well as to make it simpler for a consumer to switch between flavours.

### Brief Summary of the Invention

**[0007]** It is therefore an object of the invention to reduce or eliminate the active ingredients and/or other substances in typical e-liquids. It is a further object of the invention to provide a simpler and tidier way to switch flavours. Moreover, it is an object of the invention to provide a device and a method for delivering chemical substances in addition to or other than nicotine.

**[0008]** This object is achieved by a vaping device having the features according to claim 1 and by a method of operating a vaping device having the features according to claim 14. Further preferred embodiments are provided in the dependent claims.

**[0009]** According to a preferred embodiment, the invention is further drawn to a vaping device that more closely matches the taste sensation of a traditional cigarette. Specifically, the taste sensation is similar to a traditional cigarette because the filter member material is the same or similar to that of a traditional cigarette filter, which permits the same flavour components to be drawn through the filter material, while capturing the same components that would be filtered by a traditional cigarette filter.

**[0010]** Additionally, according to preferred embodiment the invention creates a closer transitional feel from smoking to vaping than currently exists. Thus, it becomes easier for a consumer to switch from traditional cigarettes to the vaping device according to the invention because there is less of a change in how the vaping experience with the inventive vaping device is perceived compared to a traditional cigarette than there it between a known vaping device and a traditional cigarette.

**[0011]** The vaping device according to the invention can combine traditional elements of filtered cigarettes, such as the filter member being made from a micro-porous, medium density foam material, with new vaping technology. Not only can the knowledge gained from employing the traditional elements of filter cigarettes over the years be relied on to make desirable products, but it is also possible to take advantage of the economy of scale by utilising the materials for the filter member that are also used for the productions of filter cigarettes.

**[0012]** The invention can provide a vaping experience that can be considered less harmful than traditional smoking and is equal to or even less harmful than current vaping products. In particular, the inventive vaping device not only avoids the use of burning tobacco like the current vaping products, but it also reduces or eliminates the use of at least some of the active ingredients and/or other

substances of the e-liquids of the current vaping products. As an added benefit, the vaping device according to the invention is compact and simple to operate.

**[0013]** Moreover, the device and the method disclosed herein are suitable for the delivery of chemical substances other than or in addition to nicotine. The kind of substance is not particularly limited, as long as the substance is vaporisable, i.e. mixable with the vaporised liquid component. For example, the device and method are suitable for the delivery of vaporisable drugs for treating respiratory conditions. Moreover, the substances can be provided in pure, dissolved or suspended form.

**[0014]** According to a preferred embodiment, the vaping device includes an upper device unit including an integrally formed mouthpiece; a battery unit connectable to the upper device unit, the upper device unit and the battery unit conjointly forming an enclosed storage volume; a liquid storage pod arranged in the enclosed storage volume, and a filter member insertable into the mouthpiece of the upper device unit, wherein the at least one substance is stored in a different compartment from the liquid storage pod of the vaping device.

**[0015]** According to another preferred embodiment, the liquid storage pod of the vaping device includes a liquid storage chamber; a vaping chamber; a ceramic coil compartment arranged at an inlet end of the vaping chamber; and a connector for coupling the liquid storage pod to the battery unit.

**[0016]** Preferably, at least one, more preferably one or two substance storage capsule/s is/are designed as (a) compartment/s for storing the at least one substance, wherein the at least one, preferably the one or two substance storage capsule/s is/are preferably embedded in the filter member.

**[0017]** According to a preferred embodiment, the liquid storage chamber is designed as a compartment for storing a vaporisable liquid component, preferably for storing a vaporisable liquid component containing at least one active ingredient, said active ingredient preferably being selected from a group consisting of nicotine, nicotine salts, cannabidiol (CBD), and terpenes, in particular preferred consisting of nicotine Typically, an amount of nicotine in the liquid storage chamber is from 1 mg to 10 mg, more typically 3 mg. Also typically, the amount of nicotine salt is from 10 to 30 mg. more typically 18 mg. In another typical embodiment, the amount of CBD is from 100 to 300 mg, more typically 200 mg.

**[0018]** According to yet another preferred embodiment, the vaporisable liquid component comprises propylene glycol (PG) and/or vegetable glycerine (VG). With preference, the vaporisable liquid component in the storage chamber is a mixture of PG/VG in a weight ratio (w/w) of from 20 : 80 to 80 : 20, typically 50 : 50.

**[0019]** According to a further preferred embodiment the vaporisable liquid component is propylene glycol (PG) and/or vegetable glycerine (VG) to which nicotine, a nicotine salt, cannabidiol (CBD), or a terpene has been added.

**[0020]** Preferably, the substance is a flavour compound, a medicament, or a vitamin. Also preferably, the coupling device is an external thread designed to engage with an internal thread provided in an opening of the battery unit. It is further preferred that the liquid storage chamber has a transparent window.

**[0021]** Typically, the filter member is made from a micro-porous, medium density foam. Also typically, the filter member has a diameter from 5 mm to 10 mm, preferably 6 mm to 8 mm, and more preferably of 7 mm, and the filter member has a length from 35 to 50 mm, preferably 40 to 45 mm, and more preferably of 43 mm.

**[0022]** According to a preferred embodiment, the at least one substance storage capsule has a diameter from 1 to 9 mm, preferably from 2 to 5 mm, and more preferably of 3 mm. According to another preferred embodiment, the liquid storage chamber has a storage volume from 0.2 ml to 2 ml, preferably 0.5 ml to 1.5 ml, and more preferably of 1 ml. According to yet another preferred embodiment, a battery of the battery unit has a capacity from 100 mAh to 1,000 mAh, preferably from 350 mAh to 550 mAh, and more preferably of 450 mAh.

**[0023]** Preferably, a method of operating a vaping device comprises: inserting a liquid storage pod into a battery unit of the vaping device and sliding an upper device unit over the liquid storage pod to enclose the liquid storage pod; releasing at least one substance to a filter member, preferably by rupturing the at least one, preferably one or two substance storage capsule/s, preferably embedded in a filter member, to release the substance from the storage capsule/s; inserting the filter member into a mouthpiece of the upper device unit of the vaping device; activating the vaping device, preferably by drawing on the filter member; vaporising the liquid from the liquid storage pod with a heating coil of a heating coil compartment in a vaping chamber; and mixing the vaporised liquid and the substance within the filter member. Also preferably, the method includes switching to a different substance by replacing the filter member, preferably having the substance storage capsule, with a different filter member, preferably having at least one different substance storage capsule.

**[0024]** Further features of the invention emerge from the claims, the figures and the description of the figures. The features and feature combinations referred to in the above description and the features and combinations of features in the description of the figures and/or only shown in the figures may be also be used in other combinations or on their own without departing from the scope of the invention. Embodiments of the invention that are not explicitly shown and described in the figures but which emerge from the described embodiments by way of separate feature combinations should also be considered to be disclosed. Therefore, embodiments and feature combinations which do not have all of the features of an originally formulated independent claim should also be considered to be disclosed.

## Brief Description of the Several Views of the Drawings

**[0025]** Below, advantageous exemplary embodiments of the invention, which are schematically depicted in the drawings, are described, wherein:

Fig. 1 shows a vaping device according to the invention in an exploded view;

Fig. 2 shows the vaping device according to the invention schematically in a cross-section;

Fig. 3 shows the enclosed storage volume formed by the upper device unit and the battery unit;

Fig. 4 shows a cross section of a filter member along the direction A-A' shown in Fig. 6;

Fig. 5 shows the insertion of the liquid storage pod into the battery unit;

Fig. 6 shows a cross section of a filter member along its cylinder axis side revealing the position of the flavour component capsule; and

Fig. 7 shows a flow chart of the method of operating a vaping device according to the invention.

## Detailed Description of the Invention

**[0026]** Fig 1 shows, in an exploded view, a preferred embodiment of a vaping device (10) according to the invention. In particular, the vaping device includes two device components, namely the upper device unit (16) and the battery unit (24), and two consumables, namely filter member (12) and liquid storage pod (18). The consumables can be replenished quickly and in a clean manner. The consumer experiences the replenishment as "mess free." Further, the vaping device (10) is easy to operate, maintain, and clean.

**[0027]** The upper device unit (16) includes an integrally formed mouth piece (14) with an opening for inserting the disposable filter member (12), which can be discarded after use. The liquid storage pod (18) is a self-contained unit for storing the vaporisable liquid component, which is vaporised in the vaping chamber (20) during use of the device. Further, the liquid storage pod (18) includes a connecting member (22) for attaching the liquid storage pod (18) to the battery unit (24). Accordingly, the liquid storage pod is a self-contained unit that is attached as a whole to the battery unit so that there is no need to freely transfer any e-liquid. Moreover, the liquid storage pod (18) is sealed to prevent tampering. For example, in a preferred embodiment, it can be prevented that additional substances are added to the liquid storage chamber (30). Unlike current vaping devices allowing a consumer to add components to the e-liquid, which may have a detrimental effect on the consumer's health either alone or in combination with the other ingredients of the e-liquid, the enclosed liquid storage pod (18) ensures that only the liquid from the vaping chamber (20) is vaporised and consumed. However, it is also possible to provide the liquid storage pod (18) as a refillable component.

**[0028]** Further, the heating coil and vaping chamber are optimised to vaporise the liquid, which allows for a more precise and consistent delivery of liquid, which optionally can contain an active ingredient like nicotine. Specifically, the ceramic coil being positioned inside the liquid storage pod (18) allows the liquid to be heated more precisely, which results in a more refined delivery of the liquid. Additionally, the performance of the heating coil remains optimal throughout the entire volume of the liquid in the liquid storage pod, resulting in a premium vaping experience. If a liquid other than a nicotine containing liquid is to be delivered, the liquid storage pod is optimised for that liquid.

**[0029]** Fig. 2 shows a schematic representation of vaping device (10) in a cross-section. The filter member (12) is held securely in the mouthpiece (14). A part of the filter member (12) sticks out of the mouthpiece to allow the consumer to draw in the mixture of vaporised liquid and a substance like a flavour compound. The curved surface of the filter member is covered with a paper material similar or identical to traditional filters for filter cigarettes, whereas the flat ends are uncovered to allow passage of an air flow. Thus, the vaping experience with a vaping device (10) is very similar to a traditional cigarette because the filter member provides the same feel to a consumer because the consumer's lips contact the same or a very similar material. Moreover, the air flow through the filter member is restricted in the same or similar manner as through the filter of a traditional cigarette so that the consumer experiences drawing air through the filter as being identical or similar.

**[0030]** Fig. 3 shows vaping device (10') in which the consumables are removed. The upper device unit (16) and the battery unit (24) form an enclosed storage volume (28) in which the liquid storage pod (18) is arranged during use and storage. The battery unit (24) contains a battery (26) that powers the coil in the ceramic coil compartment (34) (shown in FIG. 5) when the vaping device is automatically activated by drawing air through the filter member (12). Preferably, the battery (26) is a rechargeable battery, but the battery may also be provided as a disposable battery.

**[0031]** Fig. 4 shows a cross-section of a filter member along line A -A' correspondingly shown in Fig. 6. The at least one substance storage capsules (38,38') are embedded into the filter member (12). The capsules (38,38') can be arranged next to each other or separate from each other along the longitudinal direction of the filter member (12). It is also possible to arrange the substance storage capsules (38,38') at the same longitudinal position, but with a transverse offset (not shown). The position of the substance storage capsules (38,38') can be either felt by

the consumer or marked with an indicator printed on the paper material surrounding the filter member. Prior to inserting the filter member (12) into the mouthpiece (14), the consumer ruptures the at least one substance storage capsule (38,38'), which releases the substance into the filter member. However, it is also within the scope of the invention to provide a restriction within the passage of the filter member in the mouthpiece that breaks the at least one substance storage capsule (38,38') during insertion.

**[0032]** The type of the substance stored in the at least one substance storage capsule (38,38') is not restricted in any way. The substance can be a flavour resembling or being identical to any of the flavours of traditional cigarettes, but may also include additional or alternative flavours, such as a fruit flavour. Further, the substance can be a compound other than a flavour, such as a vitamin or a medicament. In principle, the substance can be any compound with a beneficial effect on the consumer, such as, but not limited to, a medicine for treating respiratory ailments. It is merely necessary for the substance to be mixable with the vaporised liquid in the filter member. Although the substance can be a single chemical component, such as a flavour, it is noted that the flavour can be composed of a variety of different flavour compounds that jointly form the flavour and/or taste experienced by the consumer. Additionally, the substance storage capsules (38,38') may contain additives, such as colorants, preservatives, and fragrances. If there is more than one substance storage capsules (38,38') embedded in the filter member (12), the substances of the substance storage capsules (38,38') can be identical or can be different.

**[0033]** Fig. 5 shows the insertion of liquid storage pod (18) into the battery unit (24) in the direction of arrow (40). In the preferred embodiment shown in Fig. 5, the connecting member (22) is formed as a threaded connecting member (36). Connection is made by screwing the liquid storage pod (18) into the battery unit (24). However, it is within the scope of the invention to achieve a connection between the liquid storage pod (18) and the battery unit (24) by other connecting means, such as friction elements, magnets, or spring-loaded connectors. The outer wall of liquid storage chamber (30) can be partially or completely made from a transparent material to form a transparent window. If the transparent window (32) is present, the fill level of the liquid storage chamber (30) can be directly observed. Thus, the liquid storage pod (18) is not accidentally replaced before it is completely empty. In use, the liquid from the liquid storage chamber (30) is vaporised with the coil of ceramic coil compartment (34) into vaping chamber (20). Vaporised liquid leaves the vaping chamber (20) in the flow direction of arrow (42). Thus, the substance is heated and transferred directly through the filter member into the consumer's mouth allowing for a more authentic and satisfying taste.

**[0034]** Fig. 6 schematically shows the vaporised liquid entering the filter member (12) in the direction of arrow (42). When the vaporised liquid is drawn through the filter member (12) after the at least one substance storage capsule (38,38') has been ruptured or "popped," the vaporised liquid is mixed with the freshly released substance. The mix of vaporised liquid and substance is then inhaled by the consumer drawing in air in the direction of arrow (44). If the consumer desires to switch to a different substance, all that needs to be done is to switch the filter member to a filter member having at least one substance storage capsule with a different substance.

**[0035]** Accordingly, the vaping device (10) allows for the delivery of a mixture of at least the vaporised liquid from the liquid storage pod (18) and at least one substance from the substance storage capsule (38). The choice of neither the liquid nor the substance is particularly limited. It is within the scope of the invention to provide the same substance within the liquid from the liquid storage pod (18) or to add the same or a different to the substance storage capsule (38).

**[0036]** After use, the filter member (12), which may be considered the most soiled component of the vaping device because it can come into contact with the consumer's saliva, is simply discarded. Thus, the consumer experiences a fresh vaping experience every time a new filter member (12) is inserted. Additionally, storage of the separately provided liquid and substance is improved in the vaping device because the separate storage components can be optimised with the specific requirements in mind. For example, the material for the liquid storage chamber can be chosen to be optimal for the liquid without taking into account whether the material is suitable for the substance and vice versa. Moreover, filter members (12) and liquid storage pods (18) can be stored under storage conditions, such as temperature, humidity, and light exposure, that are optimal for each component. It is also of importance that a shorter shelf life of one component does not dictate the shelf life of all consumable. While the e-liquid of the known vaping devices can only be stored for the shelf life of the component having the shortest shelf life, the separately stored consumables for vaping device (10) can be individually stored for the respective shelf lives.

**[0037]** Further, the vaping device is easy to clean and store. As can be inferred from Fig. 3, the upper device unit (16) with the mouthpiece (14) and the insertion bore for the filter member, can be cleaned simply and in a straight-forward manner. Importantly, the upper device unit (16) can be cleaned separately from, and therefore more rigorously than, the battery unit containing the battery and other electronic components.

**[0038]** Fig. 7 shows a flow chart describing method steps of a preferred embodiment 100 of the method of the present invention operating a preferred embodiment of the vaping device according to the invention. Initially, the liquid storage pod (18) is inserted into the battery unit (24) in step 110. Then, the upper device unit is slid over the liquid storage pod (18) to fully enclose the liquid storage pod (18). In step 120, the consumer ruptures the at

least one substance storage capsule embedded in the filter member (12) to release the substance, e.g., a flavour compound, into the filter member (12). The consumer inserts the filter member (12) into the mouthpiece (14) in step 130. When the consumer draws air through the filter member (12) in step 140, the device is automatically activated and the heating coil of the ceramic coil compartment (34) is heated to vaporise the liquid (and, if applicable, nicotine, for example) from the liquid storage chamber (30) in the vaping chamber (20) in step 150. Preferably, the heating coil is automatically deactivated after a pre-determined period of time, such as five minutes.

**[0039]** The vaporised liquid flows along the direction indicated by arrow (42) into the filter member (12). Accordingly, the liquid (and e.g., nicotine) is heated and vaporised independently from the substance (e.g., the flavour compound). The vapour then passes through the filter member, giving a unique vaping experience. Within the filter member, the vapour mixes with the freshly released substance in step 160, and the liquid/substance mixture flows in the direction of arrow (44) out of the filter member.

**[0040]** In optional method step 170, the consumer can switch to a different substance by simply replacing the filter member (12) with a filter member having a different substance to create a different vaping experience. Further, once the released substance has been consumed, the filter member (12) can be simply discarded. However, it is not necessary to replace the liquid storage pod (18) to create the different vaping experience. Rather, the liquid storage pod (18) is only discarded after the liquid in the liquid storage compartment has been consumed.

**[0041]** The foregoing description of the exemplary embodiments of the disclosure illustrates and describes the present invention. Additionally, the disclosure shows and describes only the exemplary embodiments but, as mentioned above, it is to be understood that the disclosure is capable of use in various other combinations, modifications, and environments and is capable of changes or modifications within the scope of the concept as expressed herein, commensurate with the above teachings and/or the skill or knowledge of the related art.

**[0042]** The term "comprising" (and its grammatical variations) as used herein is used in the inclusive sense of "having" or "including" and not in the exclusive sense of "consisting only of." The terms "a" and "the" as used herein are understood to encompass the plural as well as the singular.

Reference list

**[0043]**

| | |
|---|---|
| 10 | Vaping device |
| 10' | Vaping device without consumables |
| 12 | Filter member |
| 14 | Mouthpiece |
| 16 | Upper device unit |
| 18 | Liquid storage pod |
| 20 | Vaping chamber |
| 22 | Connecting member or Connector |
| 24 | Battery unit |
| 26 | Battery |
| 28 | Enclosed storage volume |
| 30 | Liquid storage chamber |
| 32 | Transparent window |
| 34 | Ceramic or Heating coil compartment |
| 36 | Threaded connecting member or Coupling device |
| 38, 38' | Substance storage capsules |
| 40 | Liquid storage pod insertion direction |
| 42 | Vaporised liquid flow direction |
| 44 | Vaporised liquid and substance mix flow direction |
| 100 | Vaping device operating method |
| 110 | Liquid storage pod insertion |
| 120 | Releasing substance to filter member |
| 130 | Inserting filter member into mouthpiece |
| 140 | Activating vaping device |
| 150 | Vaporising the liquid |
| 160 | Mixing of the vaporised liquid and substance in filter member |
| 170 | Optional step of switching filter member |

**Claims**

**1.** A vaping device (10) including:

- an upper device unit (16) including an integrally formed mouthpiece (14);
- a battery unit (24) connectable to the upper device unit (16), the upper device unit (16) and the battery unit (24) conjointly forming an enclosed storage volume (28);
- a liquid storage pod (18) arranged in the enclosed storage volume (28); and
- a filter member (12) insertable into the mouthpiece (14) of the upper device unit (16),

**characterised in that** at least one substance is stored in a different compartment from the liquid storage pod (18) of the vaping device (10).

**2.** The vaping device (10) according to claim 1, **characterised in that** the liquid storage pod (18) includes:

a liquid storage chamber (30);
a vaping chamber (20);
a ceramic coil compartment (34) arranged at an inlet end of the vaping chamber (20); and
a connector (22) for coupling the liquid storage pod (18) to the battery unit (24).

3. The vaping device (10) according to claim 1 or 2, further comprising at least one, preferably one or two substance storage capsule/s (38,38') designed as (a) compartment/s for storing the at least one substance, wherein the at least one, preferably one or two substance storage capsule/s (38,38') is/are embedded in the filter member (12).

4. The vaping device (10) according to claim 2 or 3, **characterised in that** the liquid storage chamber (30) is designed as a compartment for storing a vaporisable liquid component, preferably for storing a vaporisable liquid component containing at least one active ingredient, said active ingredient preferably being selected from a group consisting of nicotine, nicotine salts, cannabidiol (CBD), and terpenes, in particularly preferably consisting of nicotine.

5. The vaping device (10) according to claim 4, **characterised in that** the vaporisable liquid component comprisespropylene glycol and/or vegetable glycerine.

6. The vaping device (10) according to claim 5, **characterised in that** the vaporisable liquid component in the storage chamber (30) is a mixture of propylene glycol/vegetable glycerine in a weight ratio (w/w) from 20 : 80 to 80 : 20, preferably 50: 50.

7. The vaping device (10) according to any of claims 2 to 6, **characterised in that** the substance is at least one of a flavour compound, a medicament, or a vitamin.

8. The vaping device (10) according to any of claims 2 to 7, **characterised in that** the coupling device (36) is an external thread designed to engage with an internal thread provided in an opening of the battery unit (24) and/or **in that** the liquid storage chamber (30) has a transparent window (32).

9. The vaping device (10) according to any of claims 1 to 8, **characterised in that** the filter member (12) is made from a micro-porous, medium density foam.

10. The vaping device (10) according to any of claims 1 to 9, **characterised in that** the filter member (12) has a diameter from 5 mm to 10 mm, preferably 6 mm to 8 mm, and more preferably of 7 mm, and **in that** the filter member (12) has a length from 35 to 50 mm, preferably 40 to 45 mm, and more preferably of 43 mm.

11. The vaping device (10) according to any of claims 3 to 10, **characterised in that** the at least one substance storage capsule (38,38') has a diameter from 1 to 9 mm, preferably from 2 to 5 mm, and more preferably of 3 mm.

12. The vaping device (10) according to any of claims 2 to 11, **characterised in that** the liquid storage chamber (30) has a storage volume from 0.2 ml to 2 ml, preferably 0.5 ml to 1.5 ml, and more preferably of 1 ml.

13. The vaping device (10) according to any of claims 1 to 12, **characterised in that** a battery (26) of the battery unit (24) has a capacity from 100 mAh to 1,000 mAh, preferably from 350 mAh to 550 mAh, and more preferably of 450 mAh.

14. A method of operating a vaping device (10) comprising:

- inserting a liquid storage pod (18) into a battery unit (24) of the vaping device (10) and sliding an upper device unit (16) over the liquid storage pod (18) to enclose the liquid storage pod (18);
- releasing at least one substance to a filter member (12);
- inserting the filter member (12) into a mouthpiece (14) of the upper device unit (16) of the vaping device (10);
- activating the vaping device (10);
- vaporising the liquid from the liquid storage pod (18) with a heating coil of a heating coil compartment (34) in a vaping chamber (20); and
- mixing the vaporised liquid and the substance within the filter member (12).

15. The method according to claim 14, further comprising switching to a different substance by replacing the filter member (12) with a different filter member (12) having a different substance.

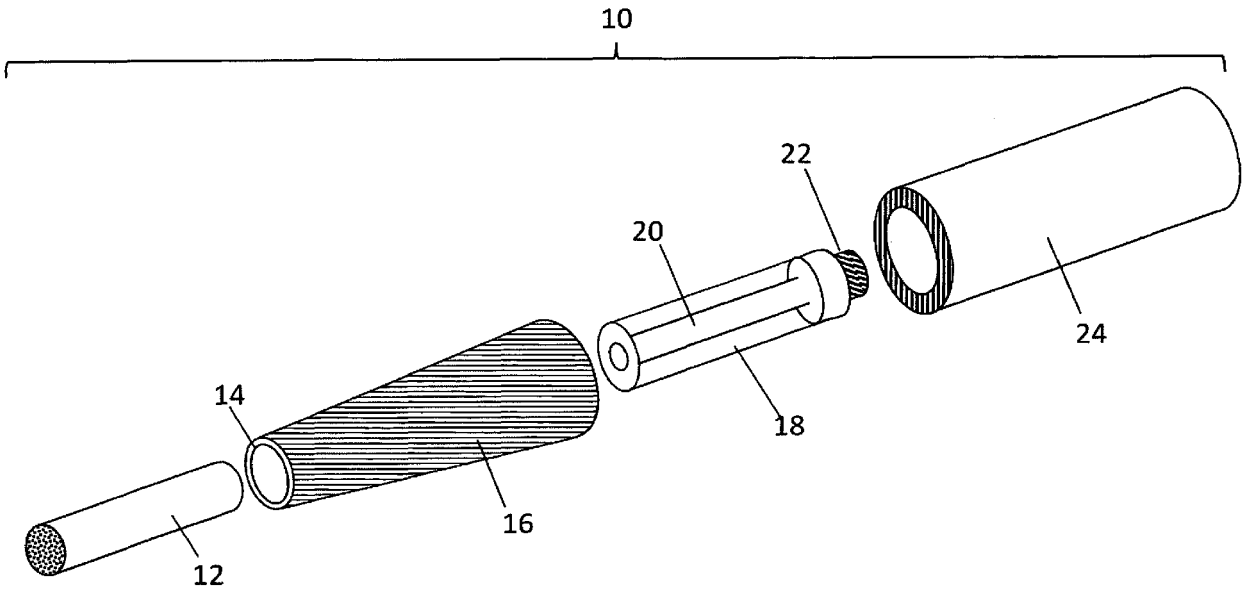


FIG. 1

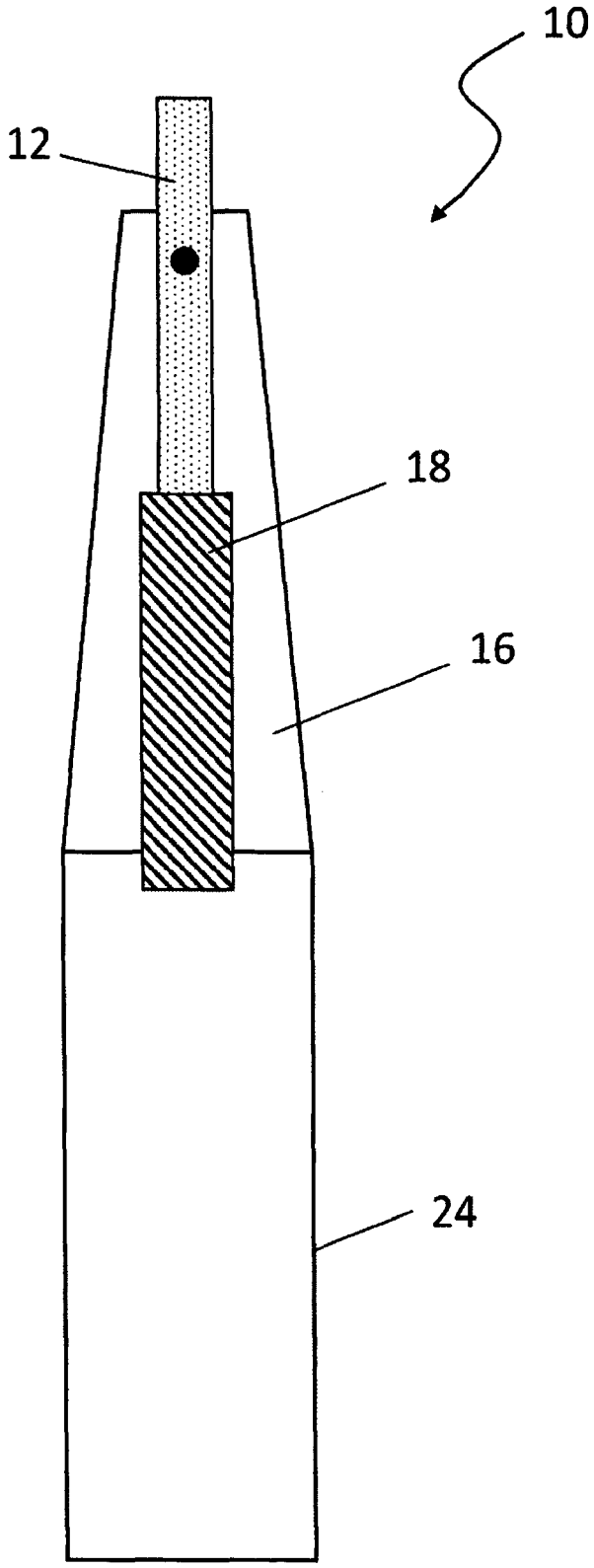


FIG. 2

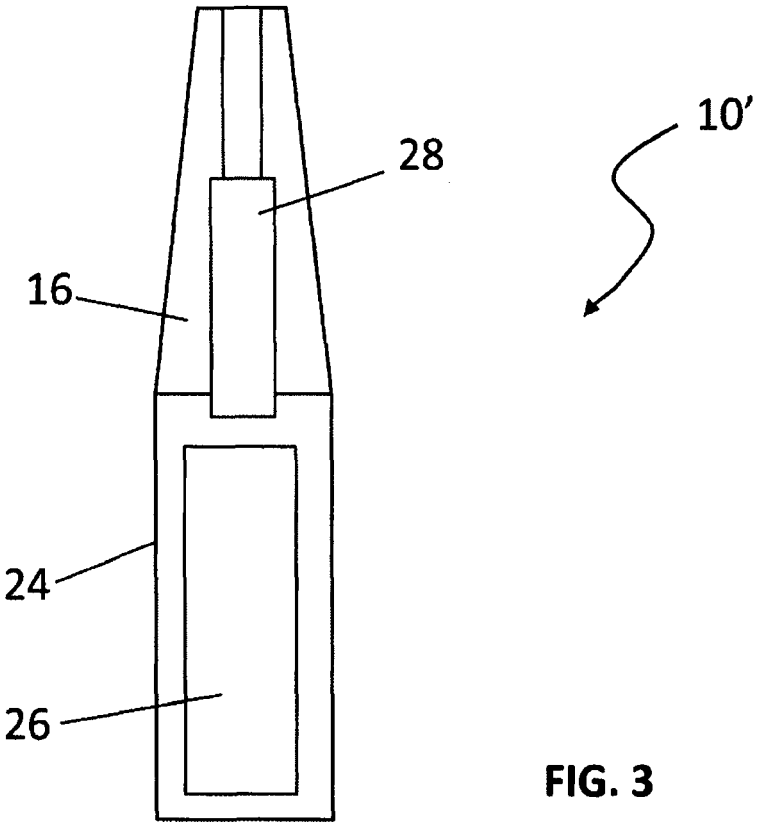


FIG. 3

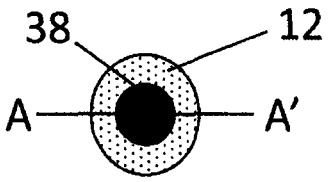


FIG. 4

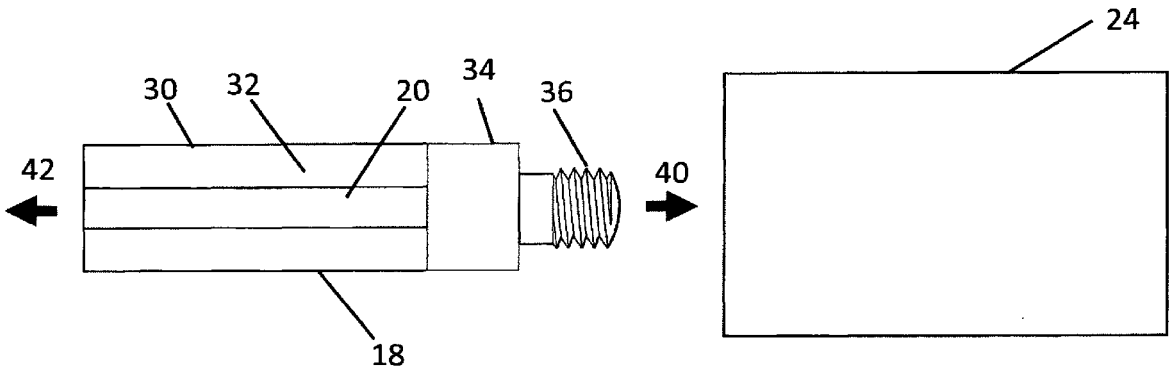


FIG. 5

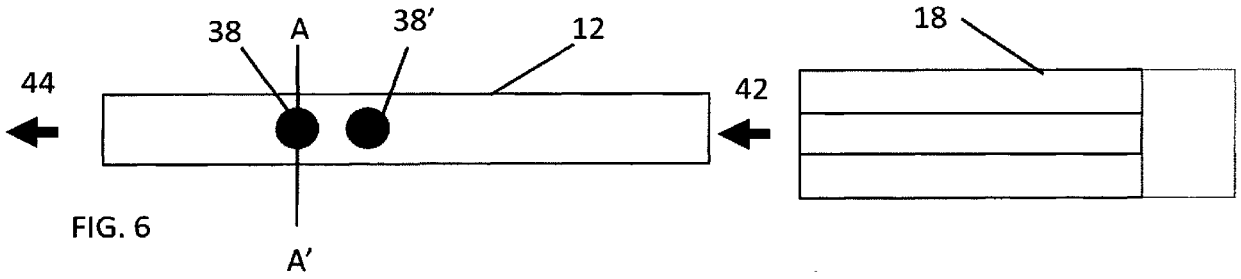


FIG. 6

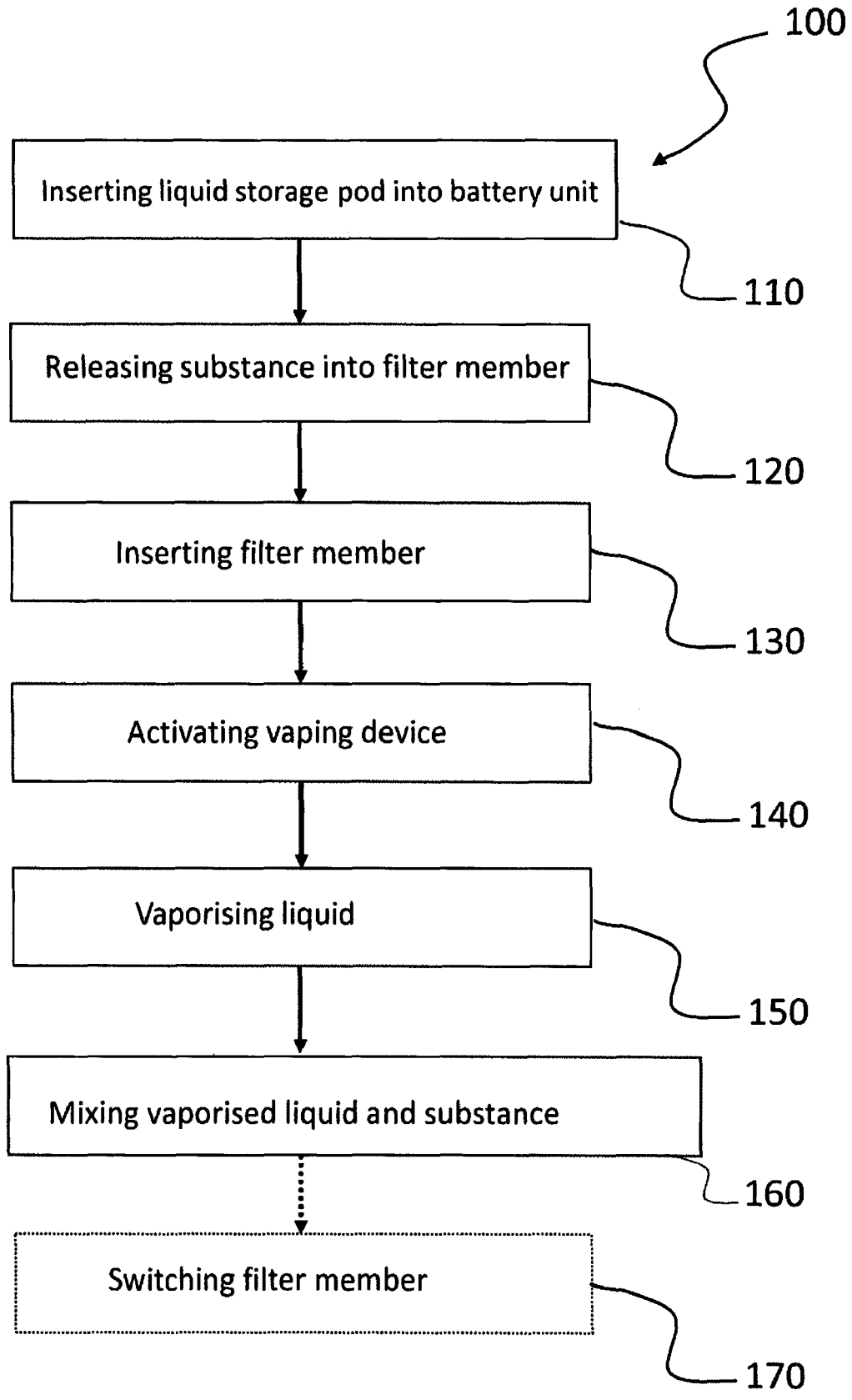
100
Inserting liquid storage pod into battery unit
110
Releasing substance into filter member
120
Inserting filter member
130
Activating vaping device
140
Vaporising liquid
150
Mixing vaporised liquid and substance
160
Switching filter member
170

FIG. 7

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Application Number
EP 19 00 0449

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|---|---|---|
| Munich | 29 May 2020 | Cabrele, Silvio |

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